## Index

A	components of, 189–199
actuators	computer hardware for, 193–197
for automated sprinkler control, 198–199	description of, 187
for BBQ temperature control, 166–167, 170–172, 178	enhancements to, 209–210
muting television with, 105, 109-112	Internet weather forecast used by, 194-195, 209
AdAware software, 253	software for, 195–197, 199–209
Advanced Control Technologies, Inc. (ACT)	soil moisture sensors for, 189-193, 200-201
TI103-RS232 controller, 19	source code for, 264-265
TI103-RS232 interface, 31	system diagram for, 187-189
wiring three-way circuits, information about, 29	automation system. See X-10 home automation system
Ahead Software NeroVision Express 3 software, 79	AutoTap ODB II interface, 226
Air-Cooled 12KW Standby Generator, 85	
alerts, for security monitoring, 87-88, 97	В
Alex C. Peper ODB II interface, 226	B. Roadman ODB II interface, 226
All Housecode X-10 RF Receiver, 20–21	BarcodeObject class, barcode software, 132
All Lights Off command, 10	BarcodeReferenceWebsite class, barcode software, 134
All Lights On command, 10	barcodes
All Units Off command, 10	definition of, 117–118
Amulet display, 247	generating, 130
analog sensors, 93–94	scanners for, 117, 121–123, 150
analog television receiver, 54	software for, 131–140
Antec Thermally Advantaged Cases (TAC), 64	symbologies for, 117–118
anti-spyware software, 253	wireless or remote scanning, 123-124
anti-static wrist strap, 259	Barcodes, Inc., generator, 130
anti-virus software, 252	Barracuda 7200.7 hard drive, 216
APC UPS units, 85, 255	Basic Stamp (Parallax)
appliances, controlling. See BBQ temperature control;	building test transmitter with, 34-38
kitchen PC	description of, 32–34
appliances, intelligent, 156	for security monitoring, 96
application layer, 8–12	BBQ Guru (HomeBBQ.com), 168
Articles (Amazon), 129	BBQ temperature control
ATI	actuator (fan) for, 166-167, 170-172, 178
PC remotes, 242	components of, 168–174
PCI Express Video Card, 64	description of, 159
atomic clock reference signals, 239	display for, 173–174, 178–179
atomic clock-based time source, 245–247	extensions to, 182–183
audio/video	generating power from fire, 182
car PC, 213, 222–224, 228, 233	processor for, 172–173
CDs, inventory of, 127–128	protective case for, 182
CDs, playing from car PC, 222–223, 228	recipes for, 160–161
DVDs, authoring, from television server, 64, 77–80	sensors for, 163–166, 168–170, 174–178
DVDs, inventory of, 127–128	software for, 174–182
DVDs, playing from car PC, 223–224, 228	source code for, 264
DVDs, playing from remote drive, 80	system diagram for, 161–167
Audiovox VE700 projector, 149	BBQController class, 178-179
AutoEnginuity, L.L.C. ODB II interface, 226	BBQLCD class, 179
automated sprinkler control	Continued

actuators for, 198-199

BBQLCD class (continued)	application layer, 8–12
beef brisket recipe, 161	definition of, 4–5
blocking coupler, 23	link layer, 7–8
Bobby Flay's Web site, 153	physical layer, 5–6
books, inventory of, 127-128	presentation layer, 8–12
books (resources). See publications	commutator, in motor, 15
Boxwave cell phone modem interface cable, 217	complex programmable logic device (CPLD), 246
BPI-216 library, 264	compressed files, unpacking, 255
Bright command, 10, 11–12	computer (PC). See also car PC; kitchen PC
broadcast television networks, 53	anti-spyware software for, 253
Broadcast Warehouse track playback information kit, 222	anti-virus software for, 252
brushes, in motor, 15	defragmenter for, 253
brusiles, in motor, 15	device drivers for, 251–252
C	with digital television, 56–59
_	
Cable Labs R&D center, 58	e-mail for, 254–255
cable television networks, 53	flashlight for working on, 261
car PC	hardware, working on, 257–262
audio/video components, 213, 222-224, 228, 233	installing new software on, 255
cell phone for, 213, 217	LAN networks, 253–255
communications for, 216–217	mirror for working on, 261
description of, 211	multimeter for working on, 261
engine diagnostics, 224–225, 228	pliers for, 261
GPS capability, 217, 228, 233, 234–235	rebooting, 255
launcher, 231–234	rebuilding from scratch, 250
mobile Internet connectivity, 216-217, 230-231	screwdrivers for, 260-261
mounting in car, 213–216	security for, 254
navigation, 228	for security monitoring, 86–87
power for, 218–221	socket drivers for, 261
sensors for, 224–226	soldering iron for, 261
server for, 213–217	static electricity, controlling, 257–260
skinning application, 234, 235	for television server, 63–75
software for, 227–234	transmitting data between (physical layer), 5-6
system diagram for, 212	as universal remote, 242
voice command software, 227–228	wearable computing, 235
wardriving, 230–231	Web servers, setting up, 254–255
wireless LAN in, 213, 217	Windows version for, 249–250
carbon monoxide sensors, 85, 89	contact information for this book, 263
CCD (charge coupled device) sensors, 54	controllers
CDMA (Code Division Multiple Access), 42	embedded microcontrollers, 31–32
CDs	list of, 18–19
inventory of, 127–128	power controller, car PC, 220
· ·	sprinkler controller, 199
playing from car PC, 222–223, 228	wireless controllers, 20–21, 24
cell phone	Convert To Temp routine, BBQ control software, 177
for car PC, 213, 217	
finder for, 238–239	cooking. See BBQ temperature control; kitchen PC
CEmailNotification class, security software, 102	cooktop, controlling, 142–143
charge coupled device (CCD) sensors, 54	cooling fan, for television server PC, 71–73
client processing, for television server, 61	Cordless MX Duo mouse, 150
clock, USB interface for, 239	couplers, 13, 23–24
CM11A controller, 18–20	CPhidgetInterface class, security software, 99
Code Division Multiple Access (CDMA), 42	CPJNSMTPConnection class, 265
Code Guru Web site, 266	CPLD (complex programmable logic device), 246
communications model	CPU cooling fan, for television server PC, 71–73

Crucial PC-4200 memory, 64	Egg Timer software, 152
CueCat barcode scanner, 122–123	electrical wiring, home. See power lines
CUPCLookupDlg class, barcode software, 131–132	Electrostatic Discharge Association (ESDA), 260
custom projects, designing, 241–242	electrostatic discharge (ESD), 257–260
n	Eleven Engineering USB development kit, 49
D	ELK-930 doorbell and telephone ring detector, 106,
D subminiature connectors, 46	107, 108
data	e-mail
command sequences, 10–12	notifications, 101–102
message content (presentation and application layers),	setting up, 254–255 e-mail address for this book, 263
8–12	
message encoding for (link layer), 7–8	embedded processors for security manitoring 96
transmitting over power lines (physical layer), 5–6	embedded processors, for security monitoring, 96 Emeril Lagasse's Web site, 153
wiring affecting transmission of, 12–15	
data link layer, 7–8	enclosure, 46
Davis Instruments Vantage Pro Envoy, 190	engine diagnostics, car PC, 224–225, 228 engine monitoring sensor, 224
DC fan, 167, 170	Epicurious Web site, 153
DCF 77 Mainflingen/Germany atomic clock reference	Escort 8500 radar detector, 224
signal, 239	ESD (electrostatic discharge), 257–260
dedicated processor, 86	ESD Journal, 260
defragmenter, 253	ESDA (Electrostatic Discharge Association), 260
DeLorme Earthmate GPS receiver, 217	ethernet cables, handling, 260
DeLorme mapping and navigation software, 228	European Article Numbering (EAN), 118, 120–121, 139
desktop PC, in kitchen, 145	Extended Code command, 10, 12
Destinator 3 software, 228 device drivers, 251–252	Extended Data command, 10, 12
dial-up connection, establishing, 103	Excelled Seed command, 10, 12
Digimoto ODB II interface, 226	F
digital cable, 58	fan
Digital Convergence, CueCat barcode scanner, 122	for BBQ temperature control, 166–167, 170–172, 178
digital scale, 150–151	for kitchen PC, 147
digital television receiver, 54–55	for television server, 71–73
Dim command, 10, 11–12	FDMA (Frequency Division Multiple Access), 42
dimmers	file sharing, 253–254
connecting, 27–28	FilterLinc Plug-In Noise Filter, 24
connecting three-way circuits to, 28–29	filters, 13–14, 23–24
description of, 15–18	firewall, 254
direct logic, clock using, 246	flashlight, for working on PC, 261
disk storage, for television server, 60, 61–62	floor sensors, 84, 89
D-Link PCI adapter, 217	fluorescent lamps, noise generated by, 15
door sensors, 84, 89, 92–93	Food Network Web site, 153
drywall repair, 94	Free Software Foundation (FSF), 263
DVDs	FreeDb database, 128
authoring, from television server, 64, 77-80	Frequency Division Multiple Access (FDMA), 42
inventory of, 127–128	freshmeat Web site, 266
playing from car PC, 223-224, 228	FrodoPlayer software, 228, 231–234
playing from remote drive, 80	FSF (Free Software Foundation), 263
_	function code (key number) for messages, 7-8, 9-10
E	Future Technology Devices International (FTDI)
EAN (European Article Numbering), 118, 120-121, 139	interface chips, 110
Earthmate GPS receiver, 217	USB chips, 245
eBay store, inventory for, 131	

G	HomeSeer software
Galleon EM2S module, 245	for automated sprinkler control, 193-197, 209
garage door sensors, 89	controllers compatible with, 18, 19
gate sensors, 89	house code for messages, 7–8, 9
Gateway, ESD information by, 260	household, inventory of items in, 129–130
GeekWaterWatcherView class, sprinkler software, 205	HSTC Destinator 3 software, 228
Generac Guardian Air-Cooled 12KW Standby	Human Interface Device (HID) standard, 98
Generator, 85	,
Gibson Research Web site, 254	I
glass breaking sensors, 85, 89	IDAutomation.com Inc., barcode generator, 130
GM OBD-II Java Interface, 229	IEEE 802.11g PCI adapter, 217
GNU Public License (GPL), 263	IE-SPYAD software, 253
GPS capability, car PC	iGo power converter, 221
description of, 217	iGuidance software, 228
extensions to, 234–235	Imation, 129
interface for, 233	iNav iGuidance software, 228
software for, 228	Industrial, Scientific, Medical (ISM) frequency bands, 42
grilling. See BBQ temperature control	infrared temperature gun, 182
graning. Set BBQ temperature control	installing new software on PC, 255
Н	insurance, inventory for, 129–130
	Intel
Hail Acknowledge command, 10, 12	
Hail Request command, 10, 12 hard disk, for television server PC, 63	ESD information by, 260 motherboards, 64, 67
hardware router, 254	processors, 63
Hauppauge TV tuner, 64	intelligent appliances, 156
HBG Prangins/Switzerland atomic clock reference	Internet, mobile connectivity, car PC, 216–217, 230–231
signal, 239	Internet Movie Database, 128
hex head drivers, for PC, 261	Internet UPC Database, 117
HID (Human Interface Device) standard, 98	Internet weather forecast, used by automated sprinkler,
Hobby Engineering	194–195
prototyping printed wiring board, 46	Internet XML weather feed, 195
RS-232 transceiver, 46	InternetReader class
voltage regulator, 45	barcode software, 133–134
home automation system. See X-10 home automation system	sprinkler software, 201
home power wiring. See power lines	InterVideo WinDVD Creator 2 software, 78
Home Security Store sirens, 97	. INV files, 120, 125
home television server	Inventory class, barcode software, 133
analog receiver, 54	inventory tracking
authoring DVDs, 77–80	applications of, 127–131
components of, 60–62	components of, 121–123
description of, 54–55	description of, 115
digital cable, 58	editing inventory directly, 136
digital receiver, 54–55	exporting inventory, 120, 125–127, 138–139
multiple tuners, 80	reports for, 137–138
playing DVDs from remote drive, 80	software for, 118–121, 125–127, 131–140
processor for, 63, 68–69	source code for, 264
SageTV and, 75–77, 80	system diagram for, 116–121
server PC for, 63–75	UPC database for, 117, 121
software for, 75–77	wireless or remote scanning, 123–124
system diagram for, 55–59	XML format for, 139
video editing, 77–80	InventoryObject class, barcode software, 133
HomeBBQ.com BBQ Guru, 168	IP networks, 54

iPod as platform for projects, 240, 247–248	LAN networks, 53, 213, 217, 253–255
iPodLinux Project Web site, 247	laptop
IR remote transmitters, 80	for car PC, 213–214, 221
Irrometer Watermark soil moisture sensor, 190	in kitchen, 144–145
ISM (Industrial, Scientific, Medical) frequency bands, 42	laser light show, 239, 243–245
ISO seven-layer communications model	layers of communications model
application layer, 8–12	application layer, 8–12
definition of, 4–5	definition of, 4–5
link layer, 7–8	link layer, 7–8
physical layer, 5–6	physical layer, 5–6
presentation layer, 8–12	presentation layer, 8–12
1	LCD
J	for BBQ temperature control, 173–174, 178–179
Java OBDII Project, 229	for car PC, 223, 225
Javelin Stamp (Parallax)	for kitchen PC, 148
for automated sprinkler control, 190	Leviton Noise Block, 24
for BBQ temperature control, 172–173	Leviton Signal Bridge, 24
for security monitoring, 96	Leviton Whole-House Blocking Couplers, 24
tracing signals using, 40–41	LG Electronics appliances, 156
Web site for, 32	light sensors, 21–22
for wireless RS-232 links, 42, 47	Lilliput LCD panels, 223, 225
JJY Japan atomic clock reference signal, 239	linear power supplies, 15
Jon Rhees USB Universal Infrared Receiver Transmitter, 109	link layer, 7–8
	Linksys wireless LAN components, 217
K	Linux Embedded Appliance Firewall, 254
key number (function code) for messages, 7-8, 9-10	Logitech
keyboard sensor, 224	Cordless MX Duo mouse, 150
kitchen, inventory of, 128, 142. See also inventory tracking	webcam, 226
kitchen PC. See also BBQ temperature control	low-voltage sensors, 22–23
barcode scanning and, 150	Luc Degrande Serial Universal Infrared Receiver
components of, 143–152	Transmitter, 109
description of, 141	
device connections for, 151	M
intelligent appliances, 156	MAPI (Messaging Application Programming Interface), 101
keyboard and mouse for, 150	Maxim RS-232 receivers, 87
label printer for, 150	MaxStream USB RF modem, 49
network connections for, 151–152	MCM-RS232 Microcontroller Decoder Module, 245
PDAs and, 157	MDI (Multiple Document Interface), 205
recipe database for, 143-144, 152-156	Media Portal software, 75
sensors for, 150–151	messages. See data
software for, 152–156	Messaging Application Programming Interface (MAPI), 101
system diagram for, 141-143	Metcalfe's Law on the value of a network, 151
timers for, 152	MFC (Microsoft Foundation Classes)
type of display for, 148–149	for car PC, 227–228
type of PC for, 144–145	for inventory control, 131, 140
ventilation for, 145–147	for security monitoring, 98
· · · · · · · · · · · · · · · · · · ·	for sprinkler control, 207
L	for telephone ring detection, 106
L3 Systems keyboard, 224	Micro Linear USB development kit, 49
label printer for kitchen PC, 150	Micro Shutdown Controller, 220
LabelsAndValues class, sprinkler software, 206	Microhard Systems radio modules, 49
Labertonna varues class, sprinker software, 200	,

microprocessor driven clock, 246	NetStumbler software, 230
Microsoft Foundation Classes (MFC)	networks
for car PC, 227–228	e-mail for, 254
for inventory control, 131, 140	file sharing and, 253–254
for security monitoring, 98	IP networks, 54
for sprinkler control, 207	list of, 53
for telephone ring detection, 106	security for, 254
Microsoft Speech SDK, 227–228	value of, Metcalfe's Law, 151
Microsoft Windows	Web server for, 255
defragmenter for, 253	noise
patches and updates for, 251	definition of, 14
version of, 249–250	devices that generate, 15
microwave	troubleshooting, 26
controlling, 142–143	noise block, 23
intelligent, 156	noise filter, 23
Mini-ITX motherboard, 216	notification
mirror	e-mail, 101–102
for laser light show, 243-244	with remote monitoring, 87
for working on PC, 261	NTC (negative temperature coefficient) thermistor, 163
mobile Internet connectivity, car PC, 216–217, 230–231	Nu-Temp temperature probe, 168
Moore's Law, 258	nVidia device drivers, 252
motherboard, for television server PC, 64, 67	
Motion Picture Experts group (MPEG), 55	0
motion sensors, 21–22, 84–85, 89, 93–94	OBD II (On-Board Diagnostics II), 224, 226, 228–229
motors, noise generated by, 15	OBD Programmer's Page, 228
movies (DVDs)	Off command, 10
authoring, from television server, 64, 77–80	Ohaus Corporation Scout SP-401 scale, 151
inventory of, 127–128	On command, 10
playing from car PC, 223–224, 228	On-Board Diagnostics II (OBD II), 224, 226, 228–229
playing from remote drive, 80	
MP3 compression software, car PC, 223	ONE PASSircuit prototyping boards, 46
MP3Car Micro Shutdown Controller, 220	Open Source Automotive Tuning (OSAT), 229 OPUS Solutions chassis, 214
MPEG (Motion Picture Experts group), 55	
MPEG-1, 55	out-of-band signaling, 7
MPEG-2, 55	oven, controlling, 142–143
MPEG-4, 55	Р
MPEGBox power supply, 220	•
MSF Rugby/U.K. atomic clock reference signal, 239	pager, for remote control finder, 242
	pantry, inventory of, 128, 142. See also inventory tracking
multimeter, for working on PC, 261 Multiple Document Interface (MDI), 205	Parallax Basic Stamp
Multiple Document Interface (MDI), 205 music (CDs)	building test transmitter with, 34–38
	description of, 32–34
inventory of, 127–128	for security monitoring, 96
playing from car PC, 222–223, 228	Parallax BPI-216 library, 264
MusicMatch MP3 compression software, 223	Parallax BPI-216 Serial LCD Module, 173–174
MyRDS track playback information kit, 223	Parallax FTDI chips, 245
N	Parallax Javelin Stamp
	for automated sprinkler control, 190
NASA, ESD information by, 260	for BBQ temperature control, 172–173
navigation, car PC, 228. See also GPS capability, car PC	for security monitoring, 96
negative temperature coefficient (NTC) thermistor, 163	tracing signals using, 40-41
NeroVision Express 3 software, 79	Web site for, 32
Netgear wireless LAN components, 217	for wireless RS-232 links, 42, 47

passive infrared (PIR) motion detectors, 84	Plug-in Coupler-Repeater, 24
patches for Microsoft Windows, 251	Plug-In Noise Filter, 24
PC. See also car PC; kitchen PC	polling, with remote monitoring, 87
anti-spyware software for, 253	pork, pulled, recipe for, 160–161
anti-virus software for, 252	positive temperature coefficient (PTC) thermistor, 163
defragmenter for, 253	power adapter, 46
device drivers for, 251–252	power controller, car PC, 220
with digital television, 56–59	power converter for laptop, 221
e-mail for, 254–255	power failure sensors, 85, 89
flashlight for working on, 261	power inverter, car PC, 218, 219
hardware, working on, 257–262	power lines
installing new software on, 255	hazards involved in working with, 3
LAN networks, 253–255	noise and, 14–15
mirror for working on, 261	signal attenuation, remedying, 13-14
multimeter for working on, 261	transformer affecting, 12–13
pliers for, 261	transmitting data over (physical layer), 5–6
rebooting, 255	power supervisor, car PC, 219–220
rebuilding from scratch, 250	power supplies
screwdrivers for, 260–261	noise generated by, 15
security for, 254	UPS, 85, 255
for security monitoring, 86–87	Powerflash Module, 199
socket drivers for, 261	PowerLinc ESB controller, 19
soldering iron for, 261	PowerLinc II Serial/TW523 X-10 Interface, 31
static electricity, controlling, 257–260 for television server, 63–75	presentation layer, 8–12
transmitting data between (physical layer), 5–6	Pre-Set Dim command, 10, 11–12
as universal remote, 242	for RRO temperature central 172, 173
	for BBQ temperature control, 172–173
wearable computing, 235	for security monitoring, 86–87, 95–96
Web servers, setting up, 254–255	for television server PC, 63, 68–69
Windows version for, 249–250	projector, for kitchen PC, 148–149
PC Toys (Wiley Publishing, Inc.), 83, 85	projects. See also BBQ temperature control; car PC;
PC Upgrade and Repair Bible (Wiley Publishing, Inc.), 65	inventory tracking; kitchen PC; security
PCI adapter, 217	monitoring; sprinkler control, automated;
PCI Express Video Card, 64	television server; wireless RS-232 links; X-10
PCI Express X1 connector, 70, 74	home automation system
PCS Electronics track playback information kit, 222–223	adding to Windows Startup, 255
PDA networks, 53	designing, 241–242
PDA, using with kitchen PC, 157	source code for, 263–265
Pegasus Technologies radio modules, 49	television, muting when telephone rings, 105–112
Peltier cell, 182	propeller clock, 245–247
phase coupler/repeater, 23	Proportional-Integral-Derivative (PID) control loop,
PhatNoise music server system, 222	180–182, 183
PhidgetInterfaceKit, 93–94, 95–96, 98–99	prototyping printed wiring board, 46
Phidgets 2.0 library, 265	PTC (positive temperature coefficient) thermistor, 163
Phidgets USB scale, 151	publications
physical layer, 5–6	ESD Journal, 260
PID (Proportional-Integral-Derivative) control loop,	PC Toys (Wiley Publishing, Inc.), 83, 85
180–182, 183	PC Upgrade and Repair Bible (Wiley Publishing, Inc.), 65
Pinnacle Systems Studio and Expression software, 78–79	Tuning Criteria or "How do we know when it's tuned"
PIR (passive infrared) motion detectors, 84	(Shaw), 183
Pira.cz track playback information kit, 222	pulled pork recipe, 160–161
PJ Naughter classes, 101, 103, 265	PWM fan speed control, 178
pliers, for PC, 261	

R	Sanyo
radar detector, 224	LA1650/C, 245
radar traps, detecting, 226	RL-7300 cell phone, 217
Radio Data System (RDS) encoding, 222–223	satellite television networks, 53, 54
radio modules, 43–44, 45	scale, USB interface for, 240
RadioShack	ScanTool.net: OBD-II software front end, 229
actuators, 172	Scout SP-401 scale, 151
anti-static wrist strap, 259	screwdrivers, for PC, 260–261
D subminiature connectors, 46	Seagate Barracuda 7200.7 hard drives, 216
enclosure, 46	Seagate Technology LLC hard disks, 63
43-178 Fone Flasher 2 ring detector, 108	Search and Destroy software, 253
power adapter, 46	security for LAN, 254
Radiotronix radio modules, 48–49	security monitoring
Rain8 X-10 Sprinkler Controller, 199	alerts for, 87–88, 97
Ramsey Electronics radio modules, 45	for car, 224
raster scan, for laser light show, 243–244	components of, 88–97
Raytek MiniTemp infrared temperature gun, 182	description of, 83
RDS (Radio Data System) encoding, 222–223	e-mail notifications, 101–102
reactive loads, 15–17	enhancements to, 103-104
receiver. See X-10 receiver	processors for, 86–87, 95–96
recipe database, 143-144, 152-156	sensors for, 21–22, 84–86, 88–94
recipes	software for, 98–102
beef brisket recipe, 161	source code for, 265
pulled pork recipe, 160–161	system diagram for, 83–88
on Web site, 265	security systems, 88
refrigerator, inventory of, 142	Seiko label printer, 150
RegistryInfo class	sensors
barcode software, 135	for automated sprinkler control, 189-193
sprinkler software, 207	for BBQ temperature control, 163–166, 168–170
relays, 22–23	174–178
remote barcode scanning, 123–124	for car PC, 224–226
remote control	CCD (charge coupled device) sensors, 54
finder for, 238–239, 242	for kitchen PC, 150–151
PC emulating, 242	low-voltage, 22–23
for television server, 61	for security monitoring, 21–22, 84–86, 88–94
remote monitoring, 87	serial RS-232 links. See wireless RS-232 links
rental operations, inventory for, 131	Serial Universal Infrared Receiver Transmitter, 109
repeaters, 13, 23–24	server. See also television server
resistive loads, 15–17	for car PC, 213–217
resources. See publications; Web sites	Web server, 254–255
RF Monolithics radio modules, 49	seven-layer communications model
ring detector for telephone, 105, 106–108	application layer, 8–12
router, hardware, 254	definition of, 4–5
RS-232 links. See wireless RS-232 links	link layer, 7–8
RS-232 receivers, 87	physical layer, 5–6
RS-232 transceiver, 46	presentation layer, 8–12
RuleData class, sprinkler software, 201	Shaw, John A. (Tuning Criteria or "How do we know
RuleDataArray class, sprinkler software, 201	when it's tuned"), 183
	shoebox PC, in kitchen, 145
\$	signal attenuation, 13-14
SageTV software, 75–77, 80	signal bridge, 23
Salton kitchen appliances, 156	SignaLinc Plug-in Coupler-Repeater, 24

signals	start bit, 41
atomic clock reference signals, 239	start code for messages, 7–8
RS-232 signals, 42	static electricity, controlling, 257–260
tracing, 40–41	Status Request command, 10, 11
troubleshooting, 24–27	Status=off command, 10, 11
Simple Mail Transfer Protocol (SMTP), 101	Status=on command, 10, 11
sirens, 97	stop bit, 41
skinning application, 234, 235	stovetop, controlling, 142–143
Smarthome	Streamzap PC remote, 242
All Housecode X-10 RF Receiver, 20–21	Studio and Expression software, 78–79
PowerLinc ESB controller, 19	switches
PowerLinc II Serial/TW523 X-10 Interface, 31	description of, 15-18
security systems, 88	wireless, 20–21
sensors, 89	switching power supplies, 15
smoke sensors, 85, 89	symbologies, barcode, 117–118
SMTP (Simple Mail Transfer Protocol), 101	7 8,
socket drivers, for PC, 261	T
soft gauges, for car, 225	tablet PC, in kitchen, 144–145
software, inventory of, 130	TAC (Thermally Advantaged Cases), 64
soil moisture sensors, 189–193, 200–201	TAPI (Telephony Application Programming Interface), 106
soldering iron, for PC, 261	
Sony DVD burner, 64	TDMA (Time Division Multiple Access), 42 telephone networks, 53
sound	
car PC, 213, 222–224, 228, 233	telephone ring, muting television for
CDs, inventory of, 127–128	actuator for, 105, 109–112
CDs, playing from car PC, 222–223, 228	description of, 105–106
DVDs, authoring, from television server, 64, 77–80	ring detector for, 105, 106–108  Talanhany Application Programming Interface (TADI) 106
DVDs, inventory of, 127–128	Telephony Application Programming Interface (TAPI), 106
DVDs, playing from car PC, 223–224, 228	television, muting when telephone rings, 105–112
DVDs, playing from remote drive, 80	television server
	analog receiver, 54
source code for projects, 263–265 SourceForge	authoring DVDs, 77–80
	components of, 60–62
e-mail address, 263	description of, 54–55
OBD II projects, 228–229	digital cable, 58
Web site, 263–265	digital receiver, 54–55
speech SDK, 227–228	multiple tuners, 80
Speed Guide Web site, 254	playing DVDs from remote drive, 80
speed traps, detecting, 226	processor for, 63, 68–69
sprinkler control, automated	SageTV and, 75–77, 80
actuators for, 198–199	server PC for, 63–75
components of, 189–199	software for, 75–77
computer hardware for, 193–197	system diagram for, 55–59
description of, 187	video editing, 77–80
enhancements to, 209–210	temperature probe for kitchen PC, 151
Internet weather forecast used by, 194–195, 209	temperature sensors
software for, 195–197, 199–209	for BBQ temperature control, 163–166, 168–170,
soil moisture sensors for, 189–193, 200–201	174–178
source code for, 264–265	for security monitoring, 85, 89, 93–94
system diagram for, 187–189	TemperatureProbe class, BBQ control software, 177
Spybot Search and Destroy software, 253	Texas Instruments radio modules, 49
spyware, anti-spyware software for, 253 Spyware Warrior, 253	thefreecountry Web site, 266

Thermally Advantaged Cases (TAC), 64	V
thermistor, 163–166	Valentine One radar detector, 224
thermocouple, 163	Vantage Pro Envoy, 190
thin client computing, 144	VE700 projector, 149
Thomason, Lee (TinyXML), 203	vector display, for laser light show, 244–245
three-way circuits, wiring dimmers to, 28–29	Vehicle Diagnostics Suite, 229
TI103-RS232 controller, 19	vehicle sensors, 85, 86, 89–91
TI103-RS232 interface, 31	ventilation, for kitchen PC, 145–147
Time Division Multiple Access (TDMA), 42	video cameras, for car, 226
timers, for kitchen PC, 152	video cards, for television server PC, 64
Tiny Timer software, 152	video CODEC, 60
TinyXML, 203–204	video editing, 77–80
TM751 Wireless Transceiver Module, 20–21	video games, inventory of, 127–128
tone bursts, for data transmission, 5–6	ViewSonic PJ501 projector, 149
touch screen and buttons, 225	viruses, anti-virus software for, 252
TrackerPod, 85	voice command software, 227–228
transformer, affecting transmission, 12-13	VoIP (voice over IP) technology, 54
transmitter. See X-10 transmitter	voltage regulator, 45
triac semiconductor devices, 15-16	VP_Loop class, sprinkler software, 200
troubleshooting, X-10 home automation system, 24-27	VP_SerialPort class, sprinkler software, 200
tuner, for television server, 60, 64, 80	_
Tuning Criteria or "How do we know when it's tuned"	W
(Shaw), 183	WAAS (Wide Area Augmentation System), 217, 234
TV tuner, Hauppauge, 64	Wacom Cintiq touch screen LCD, 225
two-way power line interfaces, 29–31	wardriving, 230–231
7 1	warranties, tracking, 130
U	water sensors, 85, 89, 91–92. See also soil moisture sensors
Uniform Code Council (UCC), 117	watering, automated
unit codes, 9	actuators for, 198–199
United States Marine Corps Aviation Training Branch,	components of, 189–199
ESD information by, 260	computer hardware for, 193–197
Universal Product Code (UPC), 115, 117–118.	description of, 187
See also barcodes	enhancements to, 209–210
universal remote, PC as, 242	Internet weather forecast used by, 194-195, 209
UPC database	software for, 195–197, 199–209
description of, 117, 121	soil moisture sensors for, 189–193, 200–201
updating, 137	source code for, 264–265
Web site for, 264	system diagram for, 187–189
.upc files, 119	Watermark soil moisture sensor, 190
UPC (Universal Product Code), 115, 117–118.	waveform for asynchronous serial port transmission, 39-41
See also barcodes	wearable computing, 235
updates for Microsoft Windows, 251	weather forecast, used by automated sprinkler, 194–195
UPS, 85, 255	Web servers, setting up, 254–255
USB data links, 49	Web sites
USB development kit, 49	AdAware software, 253
USB interface, adding to devices, 239–240, 245–247	Advanced Control Technologies, Inc., 19, 29
USB RF modem, 49	Ahead Software NeroVision Express 3 software, 79
USB transmitter, 242	Alex C. Peper ODB II interface, 226
USB Universal Infrared Receiver Transmitter, 109	Amulet display, 247
USB-UIRT infrared transceiver, 80	Antec thermally advantaged PC case, 64
,	APC UPS units, 85, 255
	Articles (Amazon), 129

Continued

ATI PC remotes, 242 ATI PCI Express Video Card, 64 Audiovox VE700 projector, 149 AutoEnginuity, L.L.C. ODB II interface, 226 AutoTap ODB II interface, 226 B. Roadman ODB II interface, 226 barcode scanning, 122-123 Barcodes, Inc., generator, 130 Bobby Flay, 153 Boxwave cell phone modem interface cable, 217 Broadcast Warehouse track playback information kit, 222 Cable Labs R&D center, 58 Code Guru, 266 Crucial PC-4200 memory, 64 Davis Instruments Vantage Pro Envoy, 190 DeLorme Earthmate GPS receiver, 217 DeLorme mapping and navigation software, 228 Destinator 3 software, 228 dial-up connection, establishing, 103 drywall repair tutorials, 94 Egg Timer software, 152 Eleven Engineering USB development kit, 49 ELK-930 doorbell and telephone ring detector, 108 embedded microcontrollers, 32 embedded processors, 96 Emeril Lagasse, 153 Epicurious, 153 ESD information, 260 ESD Journal, 260 ESDA (Electrostatic Discharge Association), 260 Food Network, 153 FreeDb database, 128 freshmeat, 266 FSF (Free Software Foundation), 263 FTDI (Future Technology Devices International) USB chips, 245 Future Technology Devices International, interface chips, 110 Galleon EM2S module, 245 Generac Guardian Air-Cooled 12KW Standby Generator, 85 Gibson Research, 254 Hauppauge TV tuner, 64 Hobby Engineering prototyping printed wiring board, Hobby Engineering RS-232 transceiver, 46 Hobby Engineering voltage regulator, 45 Home Security Store sirens, 97 HomeBBQ.com BBQ Guru, 168 HomeSeer software, 19, 195

IDAutomation.com Inc., barcode generator, 130

IEEE 802.11g PCI adapter, 217

IE-SPYAD software, 253 iGo power converter, 221 Imation, 129 iNav iGuidance software, 228 Intel motherboards, 64 Intel processors, 63 Internet Movie Database, 128 Internet UPC Database, 117 Internet XML weather feed, 195 InterVideo WinDVD Creator 2 software, 78 iPodLinux Project, 247 Irrometer Watermark soil moisture sensor, 190 Jon Rhees USB Universal Infrared Receiver Transmitter, 109 L3 Systems keyboard, 224 LG Electronics appliances, 156 Lilliput LCD panels, 223, 225 Linksys wireless LAN products, 217 Linux Embedded Appliance Firewall, 254 Logitech Cordless MX Duo mouse, 150 Logitech webcam, 226 Luc Degrande Serial Universal Infrared Receiver Transmitter, 109 Maxim RS-232 receivers, 87 MaxStream USB RF modem, 49 Micro Linear USB development kit, 49 Micro Shutdown Controller, 220 Microhard Systems radio modules, 49 Microsoft Speech SDK, 227 MPEGBox power supply, 220 MusicMatch MP3 compression software, 223 MyRDS track playback information kit, 223 Netgear wireless LAN components, 217 NetStumbler software, 230 Nu-Temp temperature probe, 168 nVidia device drivers, 252 OBD Programmer's Page, 228 Ohaus Corporation scale, 151 OPUS Solutions chassis, 214 Parallax Basic Stamp, 96 Parallax BPI-216 library, 264 Parallax BPI-216 Serial LCD Module, 174 Parallax FTDI chips, 245 Parallax Javelin Stamp, 32, 40, 96, 172–173, 190 PCS Electronics track playback information kit, 222 Pegasus Technologies radio modules, 49 Peltier cell, 182 PhatNoise music server system, 222 PhidgetInterfaceKit, 95 Phidgets 2.0 library, 265 Phidgets USB scale, 151

Web sites (continued)	X-10 filters, couplers, receivers, 24
Pinnacle Systems Studio and Expression software, 78-79	X-10 low-voltage sensors, 23
Pira.cz track playback information kit, 222	X-10 motion sensors, 21
PJ Naughter classes, 101	X-10 PC remotes, 242
RadioShack 43-178 Fone Flasher 2 ring detector, 108	X-10 PF284 Powerflash actuator, 109
RadioShack actuators, 172	X-10 PF284 Powerflash Module, 199
RadioShack anti-static wrist strap, 259	X-10 UM506 Universal Module, 109, 199
RadioShack D subminiature connectors, 46	X-10 wireless transceivers, 21
RadioShack enclosure, 46	Xantrex power inverters, 219
RadioShack power adapter, 46	Zone Alarm firewall, 254
Radiotronix radio modules, 48–49	webcam, for car, 226
Ramsey Electronics radio modules, 45	WebsiteCatalog class, barcode software, 134
Raytek MiniTemp infrared temperature gun, 182	weight sensor (digital scale), 150-151
RF Monolithics radio modules, 49	WGL Rain8 X-10 Sprinkler Controller, 199
Salton kitchen appliances, 156	Whole-House Blocking Couplers, 24
Sanyo LA1650/C, 245	Wide Area Augmentation System (WAAS), 217, 234
Sanyo RL-7300 cell phone, 217	Wiley Publishing, Inc.
Seagate Technology LLC hard disks, 63	PC Toys, 83, 85
Seiko label printer, 150	PC Upgrade and Repair Bible, 65
Smarthome controllers, 19	Wiley Web site, 263
Smarthome filters, couplers, receivers, 24	Williams-Sonoma Web site, 153
Smarthome security systems, 88	wind sensors, 85, 89
Smarthome sensors, 89	window sensors, 84, 89
Smarthome wireless transceivers, 21	Windows (Microsoft)
Sony DVD burner, 64	defragmenter for, 253
source code for projects, 263–265	patches and updates for, 251
SourceForge OBD II projects, 229	version of, 249–250
Speed Guide, 254	Windows Update Web site, 251
Spybot Search and Destroy software, 253	WinDVD Creator 2 software, 78
Spyware Warrior, 253	wine cellar, inventory of, 129
Streamzap PC remote, 242	Winland sensors, 89
Texas Instruments radio modules, 49	WinZip software, 255
thefreecountry, 266	wired LAN networks, 53, 253–255
Tiny Timer software, 152	wired telephone networks, 53
TinyXML, 203	wireless barcode scanning, 123–124
TrackerPod, 85	wireless controllers, 20–21, 24
two-way power line interfaces, 29–31	wireless LAN
UCC (Uniform Code Council), 117	in car PC, 213, 217
UPC database, 264	description of, 53
USB-UIRT infrared transceiver, 80 Valentine One radar detector, 224	wireless PDA networks, 53 wireless phone finder, 238–239
	wireless RS-232 links
vehicle detection information, 86	
ViewSonic PJ501 projector, 149	components of, 44–47
Wacom Cintiq touch screen LCD, 225	description of, 39–42
WGL Rain8 X-10 Sprinkler Controller, 199	handling higher data rates with, 48–49
Wiley Publishing, 263 Williams-Sonoma, 153	radio modules for, 43–44, 45, 48–49
Williams-Sonoma, 153	RS-232 signals, 42
Windows Update, 251	software for, 47–48
Winland sensors, 89	system diagram for, 42–44
WinZip software, 255	USB data link as alternative to, 49
Wolfgang Puck, 153	waveform for, 39–41
X-10 controllers, 19	wireless switches, 20–21

wireless telephone networks, 53	X-10 PF284 Powerflash actuator, 109
wireless USB links, 49	X-10 PF284 Powerflash Module, 199
wiring, home. See power lines	X-10 Phase Coupler/Repeater, 24
Wolfgang Puck's Web site, 153	X-10 Powerflash low-voltage sensor, 23
WWVB Fort Collins/US atomic clock reference signal, 239	X-10 Pro PSC05 two-way power line interface, 31
	X-10 Pro XPTR, 26–27
X	X-10 Pro XPTT, 26
X-10 Dual Motion Monitor, 21	X-10 receiver
X-10 Eagle Eye Motion Sensor, 21	connections to, 27–29
X-10 home automation system	diagram including, 4
building custom modules, 29–38	troubleshooting, 25–27
command sequences, 10–12	X-10 transmitter. See also controllers
communications layers for, 4–12	building with Basic Stamp, 34-38
connections to standard modules, 27–29	diagram including, 4
controllers, 18–21	troubleshooting, 24–25
couplers, 23–24	X-10 TW523 two-way power line interface, 29–31
dimmers, 15–18, 27–29	X-10 UM506 Universal Module, 109, 199
filters, 23–24	X-10 Universal Module low-voltage sensor, 22–23
light sensors, 21–22	X-10 Whole-House Blocking Couplers, 24
low-voltage sensors, 22–23	X-10 XPF 3-Wire Noise Filter, 24
motion sensors, 21–22	Xantrex power inverters, 219
nearby X-10 systems affecting, 15	XML
planning projects using, 3	inventory tracking using, 139
raw signaling bit rate of, 6	TinyXML, 203-204
relays, 22–23	weather feed using, 195
repeaters, 23–24	
switches, 15–18, 20–21	Z
system diagram for, 4	Zone Alarm firewall, 254
troubleshooting, 24–27	Index 579568/Geek House: 10 Hardware Hacking
wiring affecting transmission of, 12–15	Projects for Around Home 12
X-10 MS14A motion sensor, 21–22	•

X-10 PC remotes, 242